

I claim:

1. Metering pump for a vehicle heater comprising an inlet chamber (40; 40a), an outlet chamber (50; 54a), a first valve arrangement (66; 66a), between the inlet chamber (40; 40a) and the outlet chamber (54; 54a), which permits a fluid exchange substantially only from the inlet chamber (40; 40a) to the outlet chamber (54; 54a), a displacement piston element (12; 12a), which is movable between a first piston position in which it minimizes the volume of the inlet chamber (40; 40a), and into a second piston position in which it minimizes the volume of the outlet chamber (54; 54a); upon movement of the displacement piston element (12; 12a) from the first piston position to the second piston position, a volume decrease (V_1) of the inlet chamber (40; 40a) is greater than a volume increase (V_2) of the outlet chamber (54; 54a).
2. Metering pump device according to claim 1, wherein the displacement element (12; 12a) is inserted with a first piston region (86; 86a) into the inlet chamber (40; 40a), and in the second piston position the displacement piston element (12; 12a) is inserted with a second piston region (88; 88a) into the outlet chamber (54; 54a).
3. Metering pump device according to claim 1, wherein the displacement piston element (12; 12a) has, in a first piston region (86; 86a), a first displacement surface (87; 87a) effective upon movement of the displacement piston element (12; 12a) in the direction toward the first piston position, and has a second displacement surface (89; 89a) effective for movement of the displacement piston element in the direction toward the second piston position; and wherein the first displacement surface (87; 87a) is greater than the second displacement surface (89; 89a).
4. Metering pump arrangement according to claim 3, wherein the first displacement surface (87; 87a) and the second displacement surface (89; 89a) have a mutual surface ratio of 2:1.

5. Metering arrangement according to claim 2, wherein the displacement piston element (12) has a piston section (30) preparing the first piston region (86) and the second piston region, and also a displacement section (28) which is inserted upon movement of the displacement system element from the first piston position to the second piston position.
6. Metering pump according to claim 1, wherein the displacement piston element (12; 12a) can be displaced between the first piston position and the second piston position.
7. Metering pump device according to claim 1, wherein the displacement piston element (12) is displaceable in a piston housing (14) with cylindrical aperture (16); wherein in the piston housing (14) the region (42) of the inlet chamber (40) into which the first piston region (86) is inserted into first piston position, and the region (62) of the outlet chamber (54) into which the second piston region (88) is inserted in the second piston position, are at least partially formed.
8. Metering pump device according to claim 7, wherein the piston housing (14) is at least regionally surrounded by a chamber housing (38) and wherein the inlet chamber (40) and/or the outlet chamber (54) is/are formed at least partially between the piston housing (14) and the chamber housing (36).
9. Metering pump device according to claim 1, wherein a fluid supply duct (72) is provided in the displacement piston element (12), and has a mouth (74) at the first piston region (86) to the inlet chamber (40), and can be closed by a second valve arrangement which permits fluid exchange substantially only from the fluid supply duct (72) to the inlet chamber (40).
10. Metering pump device according to claim 1, wherein the first valve arrangement (66; 66a) and/or the second valve arrangement (76; 76a) is constructed as a check valve.
11. Metering pump according to claim 10, wherein the first valve arrangement (66) and/or the second valve arrangement (76) has a spring prestressed valve member (68; 78).

12. Metering pump according to claim 1, wherein the displacement piston element (12; 12a) has electromagnetically effective drive (34; 34a).
13. Metering pump according to claim 12, wherein the drive (34) includes a coil/armature arrangement (32; 36), the armature (36) being formed by the piston element (12).
14. Metering pump device for a vehicle heater comprising an inlet chamber (40; 40a), an outlet chamber (54; 54a), a first valve arrangement (66; 66a) between the inlet chamber (40; 40a) and the outlet chamber (54; 54a), which permits a fluid exchange substantially only from the inlet chamber (40; 40a) to the outlet chamber (54; 54a), a displacement piston element (12; 12a) which in a first position minimizes the volume of the inlet chamber (40; 40a) and in a second piston position minimizes the volume of the outlet chamber (54; 54a); wherein the first valve arrangement (66; 66a) includes a valve seat and a valve member (68; 68a) which can be pressed against the valve seat wherein the valve seat (90; 90a) of the first valve arrangement (66; 66a) is provided on a housing (14, 38; 14a).